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J. Herbert Stone Nursery Ongoing Pesticide Use Water Resources Findings

Introduction

The purpose of this paper is to document analysis of extraordinary circumstances related to water resources (floodplains, wetlands) from ongoing pesticide use at JH Stone Nursery, and to support my finding that pesticide use at the nursery according to the 2020 proposed action would follow water quality policy and law for national forest management.

The J. Herbert Stone Nursery is located on a 306-acre parcel at 2606 Old Stage Road, Central Point Oregon, in Jackson County. It contains 220 acres of fields, 5 greenhouses and shade houses, a small constructed wetland, a solar array, and a 7-acre reservoir that can be used to collect and recycle irrigation water.

Primary crops grown include conifers, grass for seed, and native plants for ecological restoration. The Southwest Oregon Forest Health Service Center is located at the nursery. The Forest Health Service Center and JHSN operations headquarters are located in the northwest part of the property. A pollinator garden has been planted near the northwest gate.

JHSN is administered by the Rogue River Siskiyou National Forest, although it lies in an agricultural area outside the National Forest boundary. It is an administrative site that was established to provide plant materials for the Forest Service, Bureau of Land Management, and other public land clients. JHSN needs to grow plant products in an economically efficient manner; the nursery competes with private agricultural providers to deliver plant materials to its clients.

The Forest Service considered purchase of the property and using it as a nursery in 1976. At that time, 257 acres were purchased, with 49 adjacent acres purchased later. In 1976, the land was used for agriculture, including a 56-acre pear orchard, grain fields and pasture land.

The nursery is surrounded by privately owned agricultural parcels and rural residences. No Forest-specific standards and guidelines apply to the site and it is not directly addressed in the Rogue River National Forest Plan (USDA Forest Service 1990), however, Forest Service laws, policies and regulations apply.

Pesticide Use at the Nursery

Pesticides have been routinely used since JHSN was established. The Nursery has found that pesticides are needed to maintain an environment capable of producing conifer, shrub, forb, and grass seed crops at a cost that is affordable to clients. Over the years, the Nursery has endeavored to minimize impacts from pesticide application by using the least amount and safest of the effective pesticide products available, and has taken the concerns of pesticide applicators and other nursery workers into account when preparing pesticide-use plans.

An Environmental Impact Statement and Record of Decision were prepared in 1989 (USDA Forest Service 1989) considering pesticide use at JHSN and other Forest Service nurseries in Oregon and Washington. That decision required nursery managers to use integrated pest management approaches that emphasize pest prevention, minimize chemical applications and consider non-chemical practices where they are effective.

The 1989 decision also required JHSN to properly train pesticide applicators and other employees about safe work practices, use personal protective equipment, and communicate hazards to workers and neighbors. Several mitigation measures were presented to reduce potential for the pesticides to harm people or the environment. Best practices for pesticide use have evolved over the years, and JHSN uses pesticides in a manner consistent with product labels that apply current best practices. Another example is care taken to promote pollinators and protect them from chemical use. Crops grown at the nursery have also evolved over the years; in 1989 the nursery focused on conifer production, but now meets the need for grass seed, and native shrubs and forbs for ecological restoration that has increased across the land management agencies.

Between 1989 and 1996, three National Environmental Policy Act (NEPA) decisions were documented using the supplemental process, and four fungicides (Iprodione, Mancozeb, Propiconazole, Thiophanate-methyl and Thiram) and one herbicide (Simazine) were added.

In 2005, the Pacific Northwest Region of the Forest Service (R6, including Oregon) released a Record of Decision (ROD) providing regional standards and guidelines for use of herbicides for invasive plant management. Clopyralid and imazapic have been used for invasive plant control in non-production areas of the Nursery, based on the regional analysis (non-documented Categorical Exclusion for administrative site maintenance). Some of the previously authorized chemicals are no longer in use.

Affected Environment

JHSN is comprised of agricultural fields; greenhouses and shade houses; a reservoir; and non-production lands including buildings, roads, fence lines, a solar array, and field J (which is not used for growing plant products). A wetland was constructed adjacent to the reservoir that is also a non-production area. Soils are primarily sandy loam. Please see affected environment and monitoring report (Desser 2020) for maps and additional information.

Three streams are within or adjacent to JHSN. These include Upper Horn Creek in the northwest portion of the nursery; Jackson Creek, which flows through the eastern portion of the nursery; and Lower Horn Creek, which is located in the southeast portion of the nursery.

Upper and lower Horn Creek are intermittent streams; both are partially diverted into culverts before emerging again on the surface. Jackson Creek is a perennial stream with an estimated base flow of approximately 3 cubic feet per second during the year (Park 2016). However, that base flow is disrupted by irrigation; water is removed for irrigation and replaced by water released by the Rogue River Irrigation District. A prominent irrigation waterway, Hopkins Canal, is located in the northeast portion of the nursery.

JHSN has rights to water from Jackson Creek for nursery irrigation. Jackson Creek goes dry during the irrigation season; water is delivered from an upstream source through a canal system back to the creek and then diverted for irrigation use at the nursery at a dam located near where Lower Horn meets Jackson Creek. The nursery uses a fraction of its water right (Justin 2019); the reservoir collects subsurface water (more discussion below) and sometimes returns it for irrigation, therefore conserving water.

The streams have been simplified over time due to development and irrigation. Roads are located nearby on both sides of the three waterways. Invasive plants (mainly blackberry) dominate the

riparian vegetation and banks. Some native trees (cottonwood, pine) grow at the top of the stream bank. The streams are deeply incised (10-20 feet) and the channels appear straightened.

Surface and Subsurface Drainage System

The production fields underlain with 6-inch perforated pipes, buried and covered approximately 3-4 feet below the surface. On the west side of Jackson Creek, water that leaches through the fields is intercepted by these pipes and directed toward a sump north and east of field D. During the dry season, water in the sump is pumped into the reservoir and eventually used for irrigation. During wetter months, the water in the sump flows directly into Jackson Creek (Justin 2019). On the east side of Jackson Creek, the tiles are directed to a pipe that enters Jackson Creek.

The roads that cross the nursery and surround the production fields also contain storm drains that eventually enter the creeks. Three storm drain outlets into Jackson Creek have been located on a map but are difficult to find because the berry brambles are so thick.

A discharge permit for pesticide use near water has been obtained and is renewed annually.

Extraordinary Circumstances

Pesticide use has been routine at the nursery for decades and is also common in the surrounding area. The Middle Rogue Pesticide Stewardship Partnership (MRPSP) has collected and analyzed stream water in the Middle Rogue to determine the presence and concentration of pesticides in the vicinity of the nursery and elsewhere through the basin (see record). Oxyfluorfen has been detected in the Jackson Creek watershed at frequencies and concentrations that are above a threshold of concern for aquatic plants. However, the concentrations of oxyfluorfen detected not likely to cause meaningful impacts to water quality or beneficial uses of water and are consistent with risk assessment findings. Nonetheless, the oxyfluorfen detections meet the criteria for designation as a Local Problem Pesticide within the Middle Rogue area (Rogue River Watershed Council 2019).

The oxyfluorfen risk assessment indicates that very little oxyfluorfen is likely to leach into the soil column under most conditions. Jackson Creek is buffered with vegetation and pesticide drift is unlikely to reach the creek. Run off is likely the primary cause of any pesticide entering Jackson Creek from nursery application in production fields. Measures to minimize run off via irrigation management and minimizing spraying during rainy periods would help reduce potential for pesticide delivery to the creek.

The MRPSP's goal is to reduce the frequency of detections of oxyfluorfen to below 35% while achieving benchmark concentrations below 50%. Measurable reductions in concentrations and detection frequencies are intended to occur each year leading up to the goal of any detection categorized as a Low Category of Concern by December 31, 2021.

The 2020 Ongoing Pesticide use Proposed Action will help reduce the potential for oxyfluorfen to reach Jackson Creek. Water Quality Best Management Practices and a monitoring framework has been adopted and are in the project record. Oxyfluorfen use is expected to decline; fewer annual entries, smaller treatment extent and lower rates of active ingredient per acre are all part of the pesticide use plan. Best management practices would reduce potential for run off via the storm drains. Monitoring will help determine the effectiveness of the BMPs.

Glyphosate or its metabolite AMPA have also been detected in increasing frequency in the local area and statewide. However, the concentrations detected are far below levels of concern for water resources. No other pesticides used at the nursery have been detected in water sampling.

Ongoing pesticide use will have no effect on municipal watersheds or drinking water. A portion of the nursery lies within the 100-year flood zone of Jackson Creek. However, the agriculture is an ordinary and appropriate use of this area. An artificial wetland has been created on the property and no extraordinary impacts to this wetland are associated with the project. The artificial wetland is not directly connected to Jackson Creek. Surface runoff from the greenhouses and shade houses is directed into the constructed wetlands. The wetland helps filter run off from the greenhouses/shadehouse before it reaches Jackson Creek. Pesticide residue is unlikely to reach the creek from application in the greenhouses/shadehouse.

References

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